Talk with the Experts: Teacher Notes

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Activity 1

Talk with the Experts

Objectives

After completing this activity students will be able to:

- Identify occupations in grasslands and understand the roles.
- Appreciate why people enjoy working in grasslands.

Target audience

Years 4-7

Duration

One 50-minute session

Materials

- Class set of computers with access to the BWVP Talk with the Experts learning object
- Student workbook
- Pencil

Activity

Students will interview four scientists working in the field of native grasslands. The experts include:

Neville Walsh, Senior Conservation Botanist, Royal Botanic Gardens Melbourne

Dr. Nick Williams, Plant Ecologist, University of Melbourne

Dr. John Morgan, Research Scientist, Latrobe University

Fiona Smith, Environmental Planner, Parks Victoria

Students will select from a range of topics and questions to learn more about the conservation and management of native grasslands. They will determine each of the scientists' roles, their career paths and research interests, how they view grassland threats, and suggestions for management strategies of grasslands.

Begin the lesson by engaging students in a discussion about grassland occupations. Consider these prompts (answers have been provided).

Does anyone know of an occupation that involves working with grasslands?

Students could consider rangers, research scientists, managers or policy makers, among many others.

List grassland occupations and explain what each job entails.

Students should identify different possibilities. Some of these may include, a research scientist that may investigate genetic diversity in a group of plant species, a park ranger who manages a grassland reserve, or a policy maker for government who writes legislation to protect grasslands.

Students will now interview the experts in the BWVP Talk with the Experts learning object and complete the student worksheet.

Talk with the Experts

The following four scientists are experts in the field of native grasslands, grassland management and grassland plant/animal identification. You will participate in a virtual interview where you can select an expert, topic and question, and then ask your own question or pose a comment. Complete the following questions in the tables provided as you undertake the interviews.

The role

1. Where do the experts work and what is their role?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Royal Botanic Gardens Melbourne Senior Conservation Botanist	University of Melbourne Plant Ecologist	Latrobe University Research Scientist	Parks Victoria Environmental Planner

2. What does the role of each expert involve?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville's role involves researching poorly known plant groups and, where necessary, providing names and descriptions so that they can be identified. Neville also helps to conserve rare native plant species in Victoria.	Nick is a researcher and teaches students about native grasslands.	John is a scientist who investigates the factors that allow plants to survive in native grasslands.	Fiona is an environmental planner currently planning for the establishment of large grassland reserves, west of Melbourne. She identifies the following issues: weed control, fire management, monitoring and restoration. Fiona also provides advice in relation to the management of grasslands to other grassland managers, research scientists and government agencies.

3. Why are the experts interested in grasslands?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville has lots of experience with grasses. He has been involved with a very rare shrub, the Spiny Rice-flower, which has been affected by the development of grassland areas.	Nick has particular expertise re the effects of the surrounding landscape on grassland plants, particularly those in urban environments.	John is most interested in a field called species coexistence. This involves identifying factors, such as fire, water and herbivores, and how they affect the number of native species in grasslands, and what the factors are that allow exotic species to move into grasslands.	Fiona is most interested in threatened species within grasslands. Fiona has been involved in the recovery teams for Striped Legless Lizards, Eastern Barred Bandicoots and the Sunshine Diuris Orchid.

4. What do the experts consider are their most satisfying achievements in working with grasslands?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville is very pleased to see that grassland ecosystems have become an ecosystem that is now taken seriously in conservation planning.	Nick has had his research used as supportive evidence in the listing of native grasslands as critically endangered under the EPBC Act.	John has discovered a lot about grasslands. This includes the effects fire plays in regeneration, grassland restoration and engaging with grassland managers to find out the factors that influence their decisions.	Fiona is very proud of her work with the recovery of the Sunshine Diuris Orchid. This involves propagating the orchid, planting the orchids in the wild and monitoring the growth of the plants.

5. What drives the experts in their roles?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville is driven to know more about the plants and animals that we live amongst, and also to ensure that all of the organisms that are here today will continue to be here in the future.	Nick is driven to ensure that grasslands are present for future generations to enjoy.	John's overriding goal is curiosity.	Fiona is driven by a desire to work in and around grasslands.

Grassland ecosystem

6. Which grassland species most interests each expert?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville is interested in grasses and making sure that they are properly named. Neville also has an interest in rare plants.	Nick is interested in lilies and orchids, as they have underground storage organs, which allows these plants to survive dry weather periods, safe underground so that they can re-sprout in autumn.	John is interested in all plant species but particularly the dominant grasses, lilies and orchids.	Fiona is interested in all grassland species but particularly in endangered fauna such as Golden Sun Moths, Eastern Barred Bandicoots and Striped Legless Lizards. Fiona's favorite flora species include; Blue Devils, Showy Podolepis and Lemon Beauty Heads.

7. How do the experts believe that the health of grasslands can be measured?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville believes that the presence of lots of native species other than grasses, and a low number of weeds is a good sign of grassland health.	Nick believes that if there is a diversity of tussock herbs, the grassland will appear healthy.	John believes that most grasslands are not pristine, as they have been invaded by introduced species. A grassland in good condition is diverse and dominated by native species.	Fiona believes that a healthy grassland in the Western Volcanic Plains would have diverse grassland flora and fauna, open spaces between the grass tussocks and very few weeds. We can measure the health by counting the number and extent of weeds, the diversity of the flora and fauna, and by measuring the spaces between tussocks.

Grassland management

8. Grasslands of the Western Volcanic Plains are critically endangered. According to the experts, what are the threats facing grasslands today?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville believes that the biggest threats to grasslands in the past were clearing, ploughing and farming, which are the main reasons why native grasslands are rare now. These days, the threats are urban development, weed invasion and loss of species from grasslands, through the closing up of those important gaps between tussock grasses.	Nick believes that the biggest threats to grasslands include landscape destruction due to urbanization, agricultural development and mismanagement.	John believes that the biggest threats to grasslands are inappropriate disturbance regimes, climate change and invasions by vigorous non-native plant species.	Fiona believes that the biggest threats to grasslands are urban development, invasive weeds and inappropriate management practices.

9. What are the best ways to restore degraded grasslands?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville believes that protection from city expansion is difficult, however grasslands can be managed in some way by creating new grasslands in areas that used to support native grasslands.	Nick believes that the government needs to protect grasslands and provide monetary incentives for grassland conservation.	John believes that biomass needs to be reduced by fire or another mechanism. To deal with climate change, species may need to be moved as they cannot move far by themselves. Weeds need to have ongoing management.	Fiona believes that we can manage threats by permanently protecting important grassland areas, controlling weeds and preventing their spread. Undertaking regular burning or controlled grazing and not disturbing the soil are also important management practices.

Involvement

10. What attracted the experts to work in grasslands?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville likes grasses and rare species, so grasslands are a type of heaven for him.	Nick likes discovering grasslands and appreciating their hidden seasonal beauty.	John likes the fact that he gets to test predictions made about grasslands, and then uses the outcomes to make management recommendations.	Fiona is attracted to grasslands because of the small and unique species, and the unusual flowering herbs. Fiona states that some grassland reserves can be found in urban environments right on your doorstep.

11. According to the experts, what are some of the hazards involved in working in grasslands?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville states that there are a few hazards, although they have never been a real problem for him. These include, hay fever, snakes, sunburn and the need to provide explanations to landowners and the community about why he is investigating native grasslands.	Nick states that the hazards are snakes and sunburn.	John states that the hazards are people. He believes it is difficult to get people to appreciate and manage grasslands.	Fiona states that the hazards are snakes, wind and hay fever.

12. What pathways could students take to enable them to work in grasslands?

Neville Walsh	Dr. Nick Williams	Dr. John Morgan	Fiona Smith
Neville believes that there are a few pathways available. Students may like to go to university and study natural resource management for hands-on involvement, or take a research-based approach and study botany, zoology or community ecology.	Nick believes that you should go to university and undertake a science or resource management degree.	John believes that you should undertake some sort of study, such as ecology at university or a more practically based subject (such as a Certificate of Land Management).	Fiona believes that you should stay at school, then go to university and study zoology, botany, and environmental science, and importantly do some volunteering at your local national park or grassland.

Conclusion

13. How does each of the experts' roles differ?

Neville's role, as Senior Conservation Botanist, requires the identification of plants and how to conserve rare species. Nick, the Plant Ecologist undertakes research and teaches university students about grasslands. John, the Research Scientist investigates factors that allow plants to survive in native grasslands, while Fiona, the Environmental Planner identifies issues and provides advice on how to

manage grasslands.

14. Which of these positions most interests you? Why?

Students will choose different roles.